

CLAIMS

1. An information processing apparatus comprising:

encoding means for encoding an input stream so as to include, among a base stream and first to n-th extension streams having extensibility for the base stream, at least the base stream and the first extension stream;

table generating means for generating a table in which information is written for associating IDs that respectively identify the base stream and the first to n-th extension streams, which are encoded by the encoding means, with the base stream and the first to n-th extension streams;

adding means for adding the corresponding IDs to the base stream and the first to n-th extension streams encoded by the encoding means; and

packetizing means for packetizing the base stream and the first to n-th extension streams, to which the IDs are added by the adding means, and the table into TS packets.

2. An information processing method comprising:

an encoding step of encoding an input stream so as to include, among a base stream and first to n-th extension streams having extensibility for the base stream, at least the base stream and the first extension stream;

a table generating step of generating a table in which information is written for associating IDs that respectively identify the base stream and the first to n-th extension

streams, which are encoded by processing in the encoding step, with the base stream and the first to n-th extension streams;

an adding step of adding the corresponding IDs to the base stream and the first to n-th extension streams encoded by processing in the encoding step; and

a packetizing step of packetizing the base stream and the first to n-th extension streams, to which the IDs are added by processing in the adding step, and the table into TS packets.

3. A program for allowing a computer to execute processing including:

an encoding step of encoding an input stream so as to include, among a base stream and first to n-th extension streams having extensibility for the base stream, at least the base stream and the first extension stream;

a table generating step of generating a table in which information is written for associating IDs that respectively identify the base stream and the first to n-th extension streams, which are encoded by processing in the encoding step, with the base stream and the first to n-th extension streams;

an adding step of adding the corresponding IDs to the base stream and the first to n-th extension streams encoded by processing in the encoding step; and

a packetizing step of packetizing the base stream and the first to n-th extension streams, to which the IDs are added by processing in the adding step, and the table into TS packets.

4. An information processing apparatus comprising:

input means for inputting a stream including TS packets forming a base stream, TS packets forming each of first to n-th extension streams having extensibility for the base stream, and a TS packet storing a table in which information is written for associating IDs that respectively identify the TS packets with the base stream or the first to n-th extension streams formed of the TS packets;

determining means for referring to the table stored in the TS packet input by the input means and determining the type of processable stream;

selecting means for selecting, from the stream, the TS packets having the ID associated with the stream determined by the determining means to be processable; and

decoding means for decoding the TS packets selected by the selecting means.

5. The information processing apparatus according to Claim 4, further comprising:

buffering means for buffering, with respect to each ID, the TS packets selected by the selecting means.

6. An information processing method comprising:

an input step of inputting a stream including TS packets forming a base stream, TS packets forming each of first to n-th extension streams having extensibility for the base stream, and a TS packet storing a table in which information is written for associating IDs that respectively identify the TS packets with the base stream or the first to n-th extension streams formed of the TS packets;

a determining step of referring to the table stored in the TS packet input by processing in the input step and determining the type of processable stream;

a selecting step of selecting, from the stream, the TS packets having the ID associated with the stream determined by processing in the determining step to be processable; and

a decoding step of decoding the TS packets selected by processing in the selecting step.

7. A program for allowing a computer to execute processing including:

an input step of inputting a stream including TS packets forming a base stream, TS packets forming each of first to n-th extension streams having extensibility for the base stream, and a TS packet storing a table in which information is written for associating IDs that respectively identify the TS packets with the base stream or the first to n-th extension streams formed of the TS packets;

a determining step of referring to the table stored in

the TS packet input by processing in the input step and determining the type of processable stream;

a selecting step of selecting, from the stream, the TS packets having the ID associated with the stream determined by processing in the determining step to be processable; and

a decoding step of decoding the TS packets selected by processing in the selecting step.

8. A data structure of an entire stream to be played back by a computer, the entire stream including a base stream and first to n-th extension streams having extensibility for the base stream, wherein

the entire stream includes:

TS packets forming the base stream;

TS packets forming each of the first to n-th extension streams; and

a TS packet storing a table in which information is written for associating the TS packets forming the base stream or the first to n-th extension streams with IDs that respectively identify the TS packets, and

a header of each of the TS packets forming the base stream and the TS packets forming each of the first to n-th extension streams includes the ID identifying the TS packet.

9. The data structure according to Claim 8, wherein

the TS packets forming the base stream and the TS packets forming each of the first to n-th extension streams,

which are included in the entire stream, are arranged in sequence of the TS packets to be played back at the same time and in the order of the TS packets forming the base stream and the TS packets forming each of the first to n-th extension streams.

10. An information processing apparatus comprising:

encoding means for encoding, of an entire stream that may include a base stream and first to n-th extension streams having extensibility for the base stream, at least the base stream;

first adding means for adding a same first ID to, among the base stream and the first to n-th extension streams, the stream encoded by the encoding means, the first ID being used to identify the entire stream;

second adding means for adding a second ID to, among the base stream and the first to n-th extension streams, the stream encoded by the encoding means, the second ID being used to identify each of the base stream and the first to n-th extension streams; and

packetizing means for packetizing the base stream and the first to n-th extension streams, to which the first ID and the second ID are added by the first adding means and the second adding means, into TS packets.

11. The information processing apparatus according to Claim 10, wherein

the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the first to n-th extension streams, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the first to n-th extension streams.

12. The information processing apparatus according to Claim 10, wherein

when any of synchronization units of the first to n-th extension streams corresponding to synchronization units of the base stream are present, the encoding means encodes, among the first to n-th extension streams, the extension stream having the present synchronization units and the base stream.

13. The information processing apparatus according to Claim 12, wherein

when any of the synchronization units of the first to n-th extension streams corresponding to the synchronization units of the base stream are present, the encoding means encodes, among the first to n-th extension streams, the extension stream having the present synchronization units and the base stream and does not encode the extension stream having none of the present synchronization units, thereby encoding the entire stream using variable bit rate.

14. An information processing method comprising:
 - an encoding step of encoding, of an entire stream that may include a base stream and first to n-th extension streams having extensibility for the base stream, at least the base stream;
 - a first adding step of adding a same first ID to, among the base stream and the first to n-th extension streams, the stream encoded by processing in the encoding step, the first ID being used to identify the entire stream;
 - a second adding step of adding a second ID to, among the base stream and the first to n-th extension streams, the stream encoded by processing in the encoding step, the second ID being used to identify each of the base stream and the first to n-th extension streams; and
 - a packetizing step of packetizing the base stream and the first to n-th extension streams, to which the first ID and the second ID are added by processing in the first adding step and the second adding step, into TS packets.
15. A program for allowing a computer to execute processing including:
 - an encoding step of encoding, of an entire stream that may include a base stream and first to n-th extension streams having extensibility for the base stream, at least the base stream;
 - a first adding step of adding a same first ID to, among

the base stream and the first to n-th extension streams, the stream encoded by processing in the encoding step, the first ID being used to identify the entire stream;

a second adding step of adding a second ID to, among the base stream and the first to n-th extension streams, the stream encoded by processing in the encoding step, the second ID being used to identify each of the base stream and the first to n-th extension streams; and

a packetizing step of packetizing the base stream and the first to n-th extension streams, to which the first ID and the second ID are added by processing in the first adding step and the second adding step, into TS packets.

16. An information processing apparatus comprising:

input means for inputting an entire stream that may include TS packets forming a base stream and TS packets forming each of first to n-th extension streams having extensibility for the base stream;

selecting means for selecting, from the entire stream, the processable TS packets based on a first ID used to identify the entire stream, a second ID identifying each of the base stream and the first to n-th extension streams, and a predetermined condition set in advance, the first ID and the second ID being stored in each of the TS packets input by the input means; and

decoding means for decoding the TS packets selected by

the selecting means.

17. The information processing apparatus according to Claim 16, wherein

to the input means, the entire stream is input, including the TS packets forming the base stream and the TS packets forming each of the first to n-th extension streams arranged in sequence of the TS packets to be played back at the same time and in the order of the TS packets forming the base stream and the TS packets forming each of the first to n-th extension streams.

18. The information processing apparatus according to Claim 16, wherein

the entire stream input to the input means at least includes the encoded base stream, and further includes the first to n-th extension streams which correspond to synchronization units of the base stream and which are encoded using variable bit rate.

19. An information processing method comprising:

an input step of inputting an entire stream that may include TS packets forming a base stream and TS packets forming each of first to n-th extension streams having extensibility for the base stream;

a selecting step of selecting, from the entire stream, the processable TS packets based on a first ID used to identify the entire stream, a second ID identifying each of

the base stream and the first to n-th extension streams, and a predetermined condition set in advance, the first ID and the second ID being stored in each of the TS packets input by processing in the input step; and

a decoding step of decoding the TS packets selected by processing in the selecting step.

20. A program for allowing a computer to execute processing including:

an input step of inputting an entire stream that may include TS packets forming a base stream and TS packets forming each of first to n-th extension streams having extensibility for the base stream;

a selecting step of selecting, from the entire stream, the processable TS packets based on a first ID used to identify the entire stream, a second ID identifying each of the base stream and the first to n-th extension streams, and a predetermined condition set in advance, the first ID and the second ID being stored in each of the TS packets input by processing in the input step; and

a decoding step of decoding the TS packets selected by processing in the selecting step.

21. A data structure of an entire stream to be played back by a computer, wherein the entire stream may include a base stream and first to n-th extension streams having extensibility for the base stream,

the entire stream includes:

TS packets forming the base stream; and

TS packets forming, when any of synchronization units of the first to n-th extension streams corresponding to synchronization units of the base stream are present, among the first to n-th extension streams, the extension stream having the present synchronization units; and

a header of each of the TS packets forming the base stream and the TS packets forming each of the first to n-th extension streams includes:

a first ID used to identify the entire stream; and

a second ID identifying each of the base stream and the first to n-th extension streams.

22. The data structure according to Claim 21, wherein

the TS packets forming the base stream and the TS packets forming each of the first to n-th extension streams, which are included in the entire stream, are arranged in sequence of the TS packets to be played back at the same time and in the order of the TS packets forming the base stream and the TS packets forming each of the first to n-th extension streams.

23. The data structure according to Claim 21, wherein

the entire stream at least includes the base stream, and further includes the TS packets forming the first to n-th extension streams corresponding to the synchronization

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units of the base stream, the number of the TS packets being variable.